setting of the control parameters. Applicant submits that a non-limiting embodiment of such features is set forth on at least pages 12-15 of the present Application. Analogous features can be found in the recitations of claim 5.

In regard to claims 1 and 5, Applicant previously argued that in Yoshihide, in order to obtain a pulse train whose power is proportional to the laser output power, the pulse train supplied to the electric power source thereof is densely or rarely controlled using the discharging electric power of each pulse being constant (i.e., the number of the command pulse trains per unit time is set in proportion to desired laser output power). As represented by Equation 1 of Yoshihide, the number (Y) of pulse trains per unit time is obtained by commanding a ratio (X/Xmax) against the maximum value (Xmax). Accordingly, only the number of pulse trains is set based on the strength of laser output power (i.e., if the strength of the laser output power is defined, the number of the command pulse trains per unit time is uniquely set).

On the other hand, Applicant noted that in the claimed configuration of the thinning-out means, a number of pulse trains are set in response to the desired output laser pulse width. Also, in the present invention, the command pulse trains are thinned out when the output pulse width is set wide (= the laser output duration is set long). That is, the present invention is configured that the output laser pulse width is set wide (or can be made longer) without the command pulse number being increased. According to this configuration, an effect can be obtained that the range of the laser output power pulse width can be widely extended without increasing the capacity of an electric power source. In other words, by thinning out the command pulses (without increasing the number), the laser pulse width is widened and the laser-output peak power is suppressed. Therefore, the laser pulse width can be controlled without the laser output power exceeding the laser durability of the mirrors that configure the laser resonator.

On the other hand, if the laser pulse width is widened, without thinning out the command pulses (by increasing the number), the laser output power increases, and as a result, the power may exceed the laser durability of the mirrors (see page 18, line 17 to page 19, line 8).

In the current Office Action, the Examiner cites to the three new references set forth above to cure the deficient teachings of Yoshihide. The Examiner maintains that the references teach that it is well known to pulse modulate in response to pulse width and to control motor and volume using pulse trains controlled in response to pulse width (pg. 3 of Office Action). Further, the Examiner maintains,

> "The use of a power pulse train with a higher frequency than the laser output response frequency is the same as setting the switching cycle to be faster than the time constant of discharge power and laser output, and controlling the overall width of this thinned or proportioned pulse train would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art in order to obtain output control having no dead band." (pg. 3 of Office Action)

In regard to the Examiner's comments regarding motivation, Yoshihide already discloses that its invention does not generate a dead band (English Abstract). Therefore, Applicant submits that the result of having output control with no dead band does not serve as proper motivation to combine the references.

Furthermore, JP 405022941 discloses a pulse train that is made to have as its amplitude, a voltage proportional to a converter voltage. Using a low-pass filter, the reference current is obtained. In JP 358141689, a pulse width is modulated in response to a targeted speed. Finally, in JP 407111427, the number of command pulses is thinned out for controlling an output amplitude value. Applicant submits that such disclosure fails to teach or suggest the claimed operation of a number of command pulses being thinned out based on setting the output pulse

width, as recited in claims 1 and 5. Accordingly, JP 405022941, JP 358141689 and JP 407111427 fail to cure the deficient teachings of Yoshihide, and thus, Applicant submits that controlling the overall width of the thinned or proportioned pulse train would not have been obvious.

At least based on the foregoing, Applicant submits that claims 1 and 5 are patentable over the cited references.

B. Claim 3

Since claim 3 is dependent upon claim 1, Applicant submits that such claim is patentable at least by virtue of its dependency.

II. Rejection under 35 U.S.C. § 103(a) in view of Yoshihide, JP 405022941, JP 358141689, JP 407111427 and JP 403011904

The Examiner has rejected claim 6 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Yoshihide, JP 405022941, JP 358141689, JP 407111427 and JP 403011904. However, since claim 6 is dependent upon claim 1, and JP 403011904 fails to cure the deficient teachings of Yoshihide, JP 405022941, JP 358141689 and JP 407111427, in regard to claim 1, Applicant submits that claim 6 is patentable at least by virtue of its dependency.

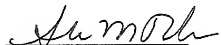
III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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